

Health Tips

Malaria: Surviving the Mosquito Season

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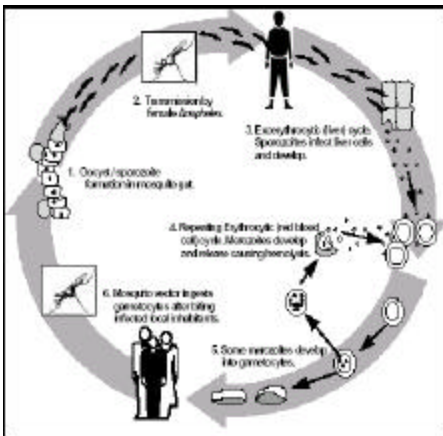
What is Malaria?

Malaria is both an acute and chronic disease caused by protozoa of the genus *Plasmodium*. Four species cause human malaria: *P. falciparum*, *P. vivax*, *P. malariae*, and *P. ovale*. The protozoa are transmitted to humans by female mosquitoes of the genus *Anopheles*. (Transmission can also occur by direct inoculation of infected red blood cells via transfusion, needles, or congenitally). Some signs and symptoms of the illness are high fever, chills, headache, anemia, and splenomegaly. Most serious and fatal complications are caused by *P. falciparum*.

Malaria Lifecycle

As evidenced by the number of flies here on camp, the recent rainfall and drop in temperature have caused a significant increase in the arthropod population. Although ongoing mosquito surveillance here on camp (so far) has revealed the absence of the *Anopheles* mosquito, the malaria threat still exists, especially for persons going off camp. To reduce this risk, various countermeasures are in place. Along with environmental countermeasure to reduce the presence of mosquitoes, personal protective measures should be carried out to reduce the risk of contracting malaria.

Personal Protective Measures



DEET

Topical repellents are natural or synthetic compounds that repel arthropods.



Permethrin Uniform Impregnates

Impartments are compounds very similar to topical repellents. They are longer lasting, and cannot be applied to skin. Permethrin is an impregnate for fabric only, used by the military to treat tents and clothing. The basic utility or camouflage uniform treated with permethrin and worn with sleeves down, collars closed and trousers bloused over boots offer excellent protection from mosquitoes.

Petty Officer 2nd Class Tamara L. Marks, a corpsman with Marine Central Command, Djibouti, sprays camouflage utilities with pesticide. To have your utilities sprayed to help prevent malaria mosquito bites, you can either call 824-2503, or e-mail MarksTL@hoa.centcom.mil.

Mosquito Bed Nets

These are a protective measure with a long history of use in tropical areas. They are designed for use with cots, bedrolls, hammocks, steel beds, and shelter half tents. Personnel should receive bed nets and be trained in their use before entry into an endemic area.

Chemoprophylaxis

Unit personnel must be screened before malaria chemoprophylaxis is initiated. Personnel who had prior reactions or risk factors, and those in certain occupations need to be identified and provided with an appropriate regimen.

Chemoprophylaxis: Before, During, After. Chemoprophylaxis should begin 2 weeks before travel to endemic areas to allow adequate blood levels to develop. This is true for all malaria prophylaxis drugs except for doxycycline, which should be initiated 1-2 days before exposure. Prophylaxis must be continued for four weeks **after** leaving an endemic area to ensure that suppressive cure results. The required four week time period is to ensure drug therapy exceeds the length of time needed for the incubation period in the liver. If a mosquito bites on the last day of deployment, protection is needed 2-3 weeks later, when parasites emerge into the blood stream.

Regimen A. Mefloquine is usually well tolerated at prophylactic dosage, but should not be taken by personnel with a history of seizures, severe psychiatric disorders, or those with cardiac conduction abnormalities. Aviators are prohibited from using it. Mefloquine 250 mg/wk should begin 2 weeks before entering endemic areas of operation, taken once a week while deployed, and once a week for four weeks after leaving.

Regimen B. Doxycycline. If given under supervision, it is very effective. Doxycycline 100 mg/day is taken at approximately the same time of day, beginning 1-2 days before entering endemic areas of operation, taken daily while there, and daily for four weeks after leaving. One of the most common side effects of doxycycline is adverse gastrointestinal symptoms, usually nausea or vomiting. These side effects may be avoided by taking doxycycline with a meal.

Terminal Primaquine Prophylaxis: Currently, primaquine is the only available drug for prevention of *P. vivax* and *P. ovale* relapse. Personnel should be screened for G-6-PD deficiency before given primaquine. It can be initiated immediately or soon after personnel depart the area of exposure, or during the last two weeks using Regimens A or B. This ensures an overlap of medication to eradicate parasites of any stage that may be present. Without primaquine therapy, personnel can harbor dormant parasites in the liver long after leaving the risk area. Terminal primaquine prophylaxis is given to ensure a complete cure.

Troops, not doctors fight battle against malaria

In World War II, Lt. Gen. Sir William Slim stopped the longest, most humiliating retreat in the history of the British Army. When he assumed command in Burma in April 1942, the health of his troops was dismal. For each wounded man evacuated, 120 were evacuated with an illness. The malaria rate was 84 percent per year of total troop strength, even higher among the forward troops. In his memoirs, he describes his course of action: "... A simple calculation showed me that at this rate my army

would have melted away. Indeed it was doing so before my eyes. Good doctors are of no use without good discipline. More than half the battle against disease is not fought by doctors, but by regimental officers. It is they who see that the daily dose of mepacrine (anti-malarial chemoprophylactic drug used in W.W.II) is taken...if mepacrine was not taken, I sacked the commander. I only had to sack three; by then the rest had got my meaning."